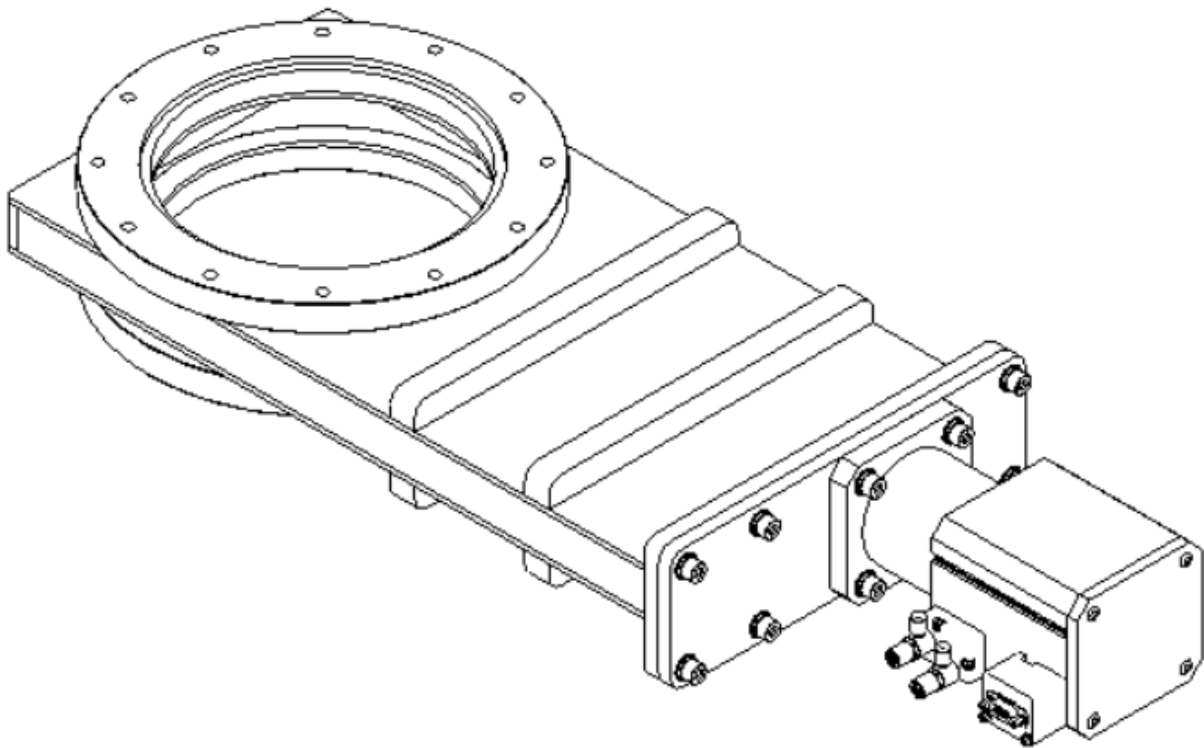


# User Manual

ISO-F Pneumatic Gate Valves

## GV Series



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Thank you!

Thank you choosing Kurt J. Lesker for your vacuum valve needs. We strive to be your partners in all your vacuum projects. This manual contains everything that you should need to know to operate and maintain your GV Series gate valve. If there is anything that you need assistance with that you cannot find in the manual, please reach out to us for further assistance.

## Products Covered in this Manual

GV0250PVCF

GV0250PVCFM

GV0400PVCF

GV0400PVCFM

GV0600PVCF

GV0600PVCFM

GV0800PVCF

GV0800PVCFM

GV1000PVCF

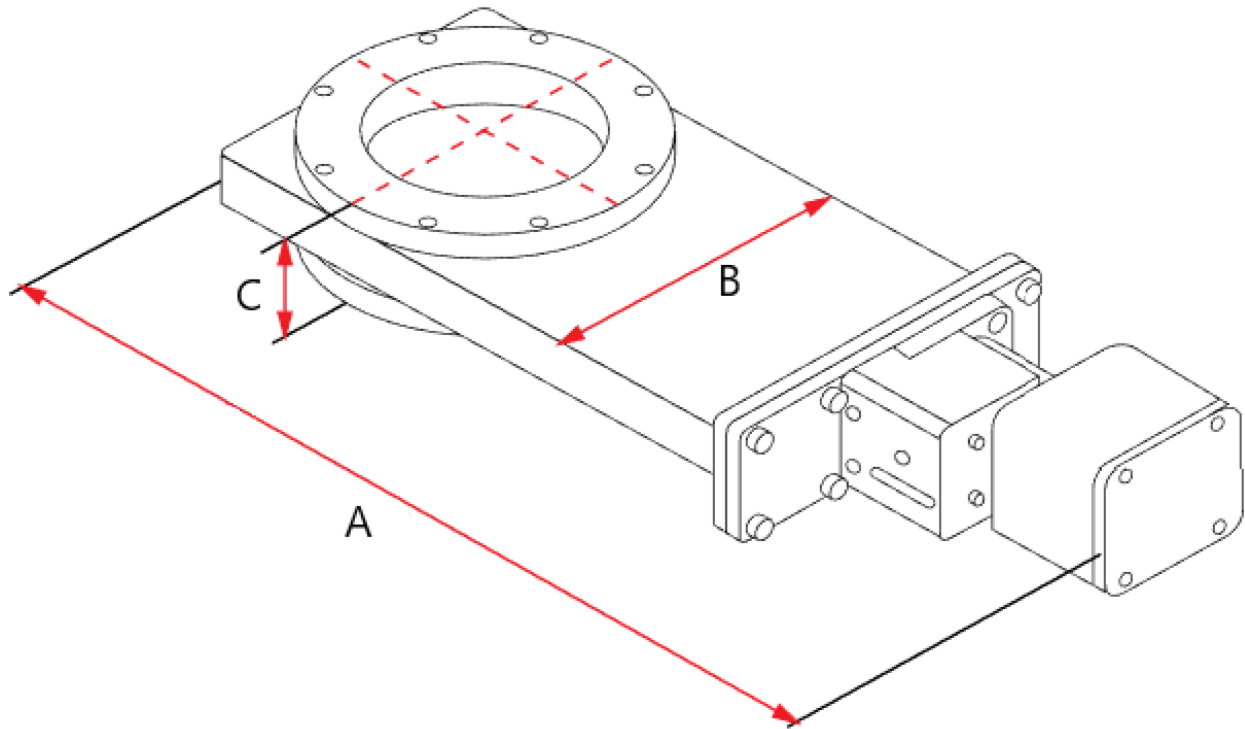
GV1000PVCFM

## Specifications

1	Pressure Range	7.50x10 <sup>-9</sup> Torr (1.00x10 <sup>-6</sup> Pa)	
2	Differential Pressure on Gate	Open Direction	900 Torr (0.12 MPa)
		Closed Direction	900 Torr (0.12 MPa)
3	Differential Pressure at opening	22.50 Torr (0.003 MPa)	
4	Helium Leak Rate	External	7.52x10 <sup>-10</sup> Torr*l/s (1.00x10 <sup>-10</sup> Pa*m <sup>3</sup> /s)
		Internal	7.52x10 <sup>-10</sup> Torr*l/s (1.00x10 <sup>-10</sup> Pa*m <sup>3</sup> /s)
5	Feedthrough	Edge-welded bellows	
6	Actuator	Pneumatic Double Acting	
7	Air Connection	Solenoid Valve OD 4mm	
8	Air Pressure	66-86psi (0.45-0.60 MPa)	
9	Open/Close Time (switch to switch)	Open	< 4 sec
		Close	< 4 sec
10	Mounting Position	Any	
11	Life Cycles	Mechanism	50,000

		O-Ring Seal	50,000								
		Lubrication	50,000								
		Bellows	50,000								
12	Temperature	Gate (seat)	248°F (120°C)								
		Actuator	140°F (60°C)								
13	Lubrication	PFPE Grease									
14	Material	Housing	304 Stainless Steel								
		Gate	304 Stainless Steel								
		Bonnet	304 Stainless Steel								
		Shaft	304 Stainless Steel								
		Gate Seal	FKM								
		Bonnet Seal	FKM								
		Bellows	AM350								
15	Surface Treatment	Body	Bead Blast								
		Gate	Bare								
		Bonnet	Bead Blast								
		Shaft	Bare								
		Actuator	Anodized (white)								
16	Electrical Connections	Sensor	Type: Reed switch								
			Quantity: 2								
		Connector	D-Sub 9P Male								
	Pin Assignment	<table border="1"> <tr> <td>1. (+) - Brown</td> <td>OPEN</td> <td>2. (+) - Brown</td> <td>CLOSE</td> </tr> <tr> <td>7. (OUT) - Blue</td> <td></td> <td>8. (OUT) - Blue</td> <td></td> </tr> </table>		1. (+) - Brown	OPEN	2. (+) - Brown	CLOSE	7. (OUT) - Blue		8. (OUT) - Blue	
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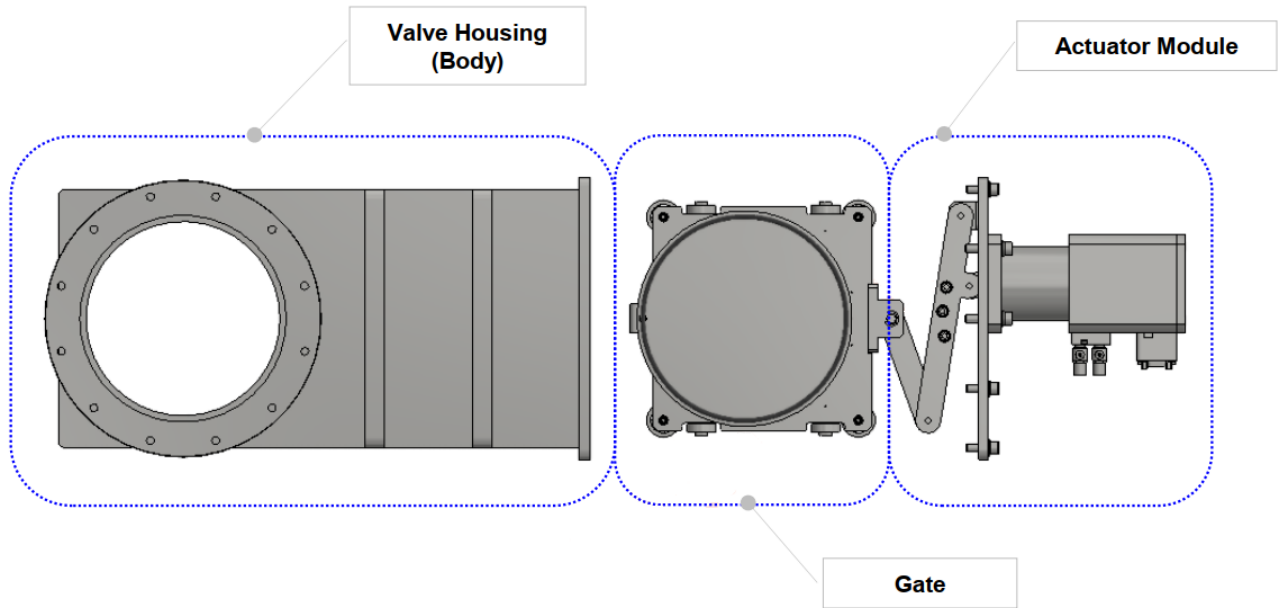
## Dimensions



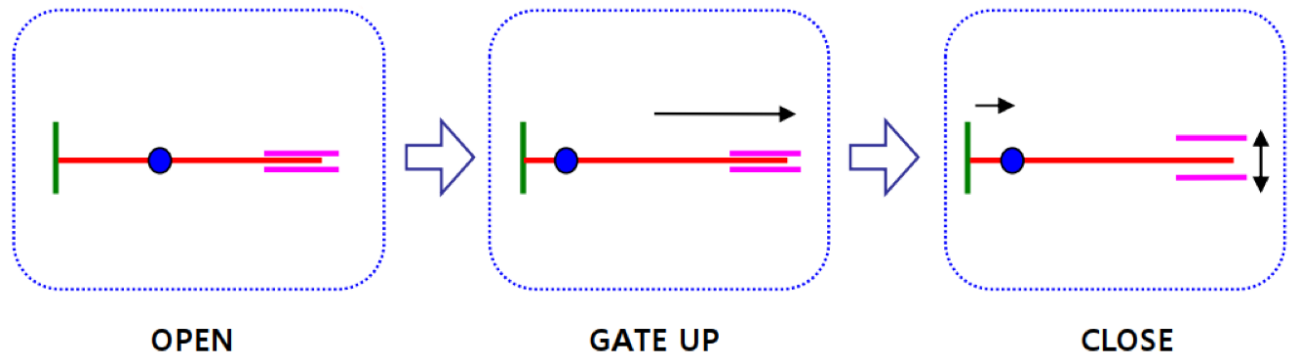
*\*Representative Image*

Part Number	Flange	Thread	Dim A in (mm)	Dim B in (mm)	Dim C in (mm)	Weight lb (kg)
GV0250PVCF	DN63CF	5/16-24	14.69 (373)	5.12 (130)	2.76 (70)	17.6 (8.0)
GV0250PVCFM	DN63CF	M8 x 1.25	14.69 (373)	5.12 (130)	2.76 (70)	17.6 (8.0)
GV0400PVCF	DN100CF	5/16-24	17.87 (453.9)	5.98 (151.9)	2.73 (69.3)	26.5 (12.0)
GV0400PVCFM	DN100CF	M8 x 1.25	17.87 (453.9)	5.98 (151.9)	2.73 (69.3)	26.5 (12.0)
GV0600PVCF	DN160CF	5/16-24	21.61 (548.9)	7.8 (198.1)	2.94 (74.7)	37.5 (17.0)
GV0600PVCFM	DN160CF	M8 x 1.25	21.61 (548.9)	7.8 (198.1)	2.94 (74.7)	37.5 (17.0)
GV0800PVCF	DN200CF	5/16-24	29.96 (761)	10.43 (265)	3.15 (80)	77.2 (35.0)
GV0800PVCFM	DN200CF	M8 x 1.25	29.96 (761)	10.43 (265)	3.15 (80)	77.2 (35.0)
GV1000PVCF	DN250CF	5/16-24	34.43 (874.4)	13.07 (332)	3.15 (80)	123 (56.0)
GV1000PVCFM	DN250CF	M8 x 1.25	34.43 (874.4)	13.07 (332)	3.15 (80)	123 (56.0)

## Part Names



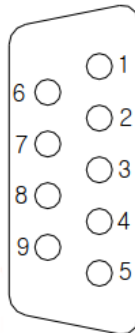
## Operation Principle



## Valve Connection and Sensors

- 1) Connection to the valve is through a D-Sub 9P Male Connector
- 2) The switch applied in this valve is the D-A93 from SMC
- 3) Please preform the wiring work referencing the following images for the safest and correct use of this product.

D-Sup 9P Male	
1. ( + ) - Brown	OPEN
7. ( OUT ) - Blue	
2. ( + ) - Brown	CLOSE
8. ( OUT ) - Blue	



D-Sub 9P Male Connector

Pin No.	Description	
1	Open	( + )
2	Close	( + )
3	No Connecting	
4	No Connecting	
5	No Connecting	
6	No Connecting	
7	Open	( - )
8	Close	( - )
9	No Connecting	



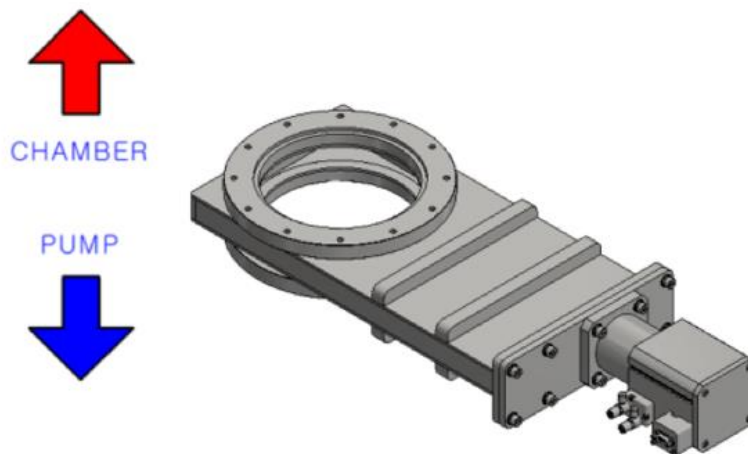
Sensor Specification	
Maker	SMC
Model	D-A93
Voltage range	DC 24V
Output current	5 to 40 mA
Ambient temperature	-5 °C ~ 70 °C
Connector	D-Sub Connector (9P Male)

## Installation and Use of Product

### Precautions and Warnings

- 1) Please ensure that the valve is clean before installation to prevent any intrusion of particulates into the valve.
- 2) Due to the weight of the product, 2 people may be required to lift and install the valve.
- 3) Install the valve on to the vacuum system, then install the pneumatic and electrical connections.
- 4) DO NOT TOUCH THE VALVE DURING OPERATION

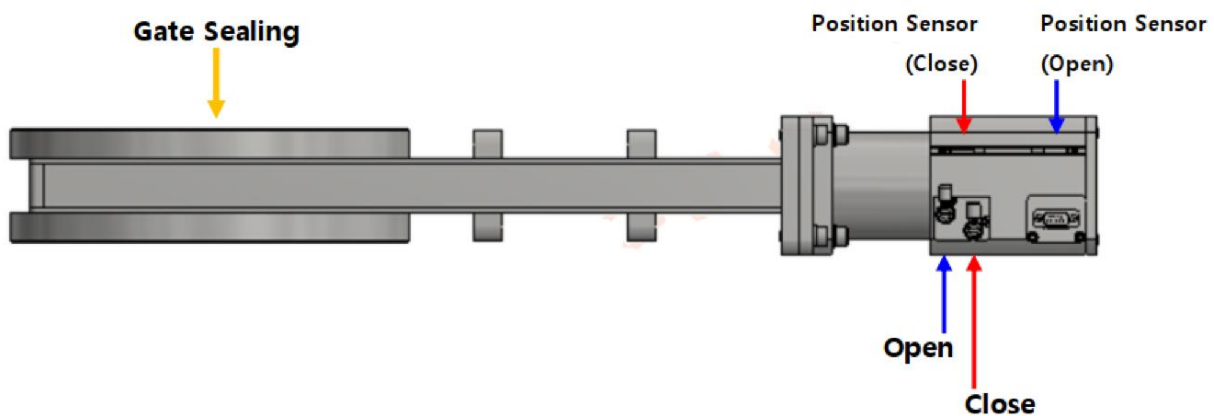
### Installation of the Valve onto the System



Before installing the valve to the system, insert the copper gasket in between the chamber and valve.

### Pneumatic Connection and Wiring

1. Recommended air pressure is 62-87 psi or 0.5MPa (0.45 – 0.6Mpa)
2. Air tube diameter 4mm





## Maintenance and Repairs

### 1. Preparing Parts and Tools

This product does not need to be maintained for the specified guaranteed period under clean circumstances. However, you may need to maintain or repair the product within the period depending on user circumstances.

**CAUTION:** If you want to maintain or repair the product on your own, please do so in a clean room to prevent particulates from entering the valve. Be sure to fully understand all instructions and safety precautions before proceeding with any maintenance.

#### 1.1 Needed Parts and Tools

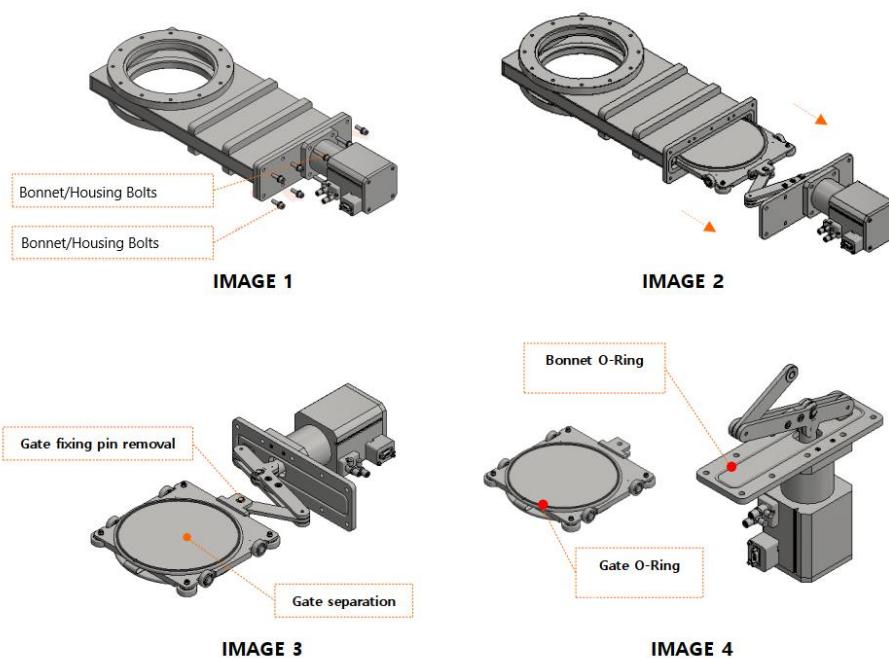
- Metric wrench set
- O-Ring Pick
- Rubber Gloves
- De-ionized water
- Clean wipe

#### 1.2 Pre-work

- 1) Ensure that the chamber is vented and the valve is in the open position
- 2) Disconnect the compressed air and sensor connections

### 2. Gate and Bonnet Seal Replacement

- 1) Loosen the bonnet and housing bolts
- 2) Separate the actuator module from the valve body
- 3) Clean the body of the valve using de-ionized water
- 4) Remove the gate fixing pin and remove the gate from the actuator
- 5) Replace the gate seal and bonnet seal
- 6) Assemble the valve in the reverse order that it was disassembled



## Troubleshooting

- 1) Before requesting inspection or service, please refer to the following table.
- 2) When asking for inspection, service, or general information, please include the following:
  - a. Model Number
  - b. Serial Number
  - c. Date of purchase and installation

Issue	What to Check	Solution
Valve Operation	Leak check the air cylinder	Cylinder repair or replacement
	Check supply air pressure	Adjust air pressure within recommended range
	Check air supply connection	Reconnect air hoses or replace
	Check position sensor	Adjust sensor location or replace
Position Sensor	Check connection of sensors	Fix and/or replace sensor connection
	Check position sensor status	Fix and/or replace sensors
Internal Leak	Check for pollution along the gate seal	Clean gate seal
	Check if there is gate seal damage	Replace gate seal
	Check air supply pressure	Adjust air supply pressure
External Leak	Check for pollution in the housing	Clean all the parts
	Check for a flange leak	Clean flanges and replace seals
	Check if there is a bellows leak	Request service from manufacturer
	Check for bonnet seal damage	Replace bonnet seal or request service

## Contact for Service

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